WEST

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**Search Results -**

| Terms | Documents |
|---|---|
| (galactose-beta 1,3-N-acetylgalactosamine-alpha-R) or (N-acetylglucosamine-beta 1,3-N-acetylgalactosamine-alpha-R) or (beta 1,6-N-acetylglucosaminyltransferase) or (C2/4GnT) | 5 |

**Database:** US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

**Search:** L2

Refine Search

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## Search History

**DATE: Friday, October 18, 2002** Printable Copy Create Case

| Set Name side by side | Query | Hit Count | Set Name result set |
|---|---|---|---|
| *DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ* | | | |
| L2 | (galactose-beta 1,3-N-acetylgalactosamine-alpha-R) or (N-acetylglucosamine-beta 1,3-N-acetylgalactosamine-alpha-R) or (beta 1,6-N-acetylglucosaminyltransferase) or (C2/4GnT) | 5 | L2 |
| L1 | PCT/DK99/00677 | 1 | L1 |

END OF SEARCH HISTORY

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L2: Entry 1 of 5 File: PGPB Oct 17, 2002

DOCUMENT-IDENTIFIER: US 20020150968 A1
TITLE: Glycoconjugate and sugar nucleotide synthesis using solid supports

Detail Description Paragraph (116):
[0128] The inventors also recognize that organisms that naturally express one or more enzymes, or have been engineered to express one or more enzymes, required for a particular glycoconjugate synthesis scheme may be useful. Examples include Escherichia coli which expresses the ceramide glucosyltransferase gene derived from human melanoma cell line SK-Mel-28 (Proc. Natl. Acad. Sci. USA, 1996, 93:4638), human melanoma cell line WM266-4 which produces beta 1,3-galactosyltransferase (ATCC CRL 1676), recombinant cell line such as namalwa cell line KJM-1 or the like which contains the beta 1,3-galactosyltransferase gene derived from the human melanoma cell line WM266-4 (Japanese Published Unexamined Patent Application No. 181759/94), Escherichia coli (EMBO J., 1990, 9, 3171) or Saccharomyces cerevisiae (Biochem, Biophys. Res. Commun., 1994, 201, 160) which expresses the beta 1,4-galactosyltransferase gene derived from human HeLa cells, COS-7 cell line (ATCC CRL 1651) which expresses the rat beta 1,6-N-acetylglucosaminyltransferase gene (J. Biol. Chem., 1993, 268: 15381), Sf9 cell line which expresses human N-acetylglucosaminyltransfera- se gene (J. Biochem., 1995, 118: 568), Escherichia coli which expresses human glucuronosyltransferase (Biochem. Biophys. Res. Commun., 1993, 196: 473), namalwa cell line which expresses human alpha 1,3-fucosyltransferase (J. Biol. Chem., 1994, 269: 14730), COS-1 cell line which expresses human alpha 1,3/1,4-fucosyltransferase (Genes Dev., 1990, 4: 1288), COS-1 cell line which expresses human alpha 1,2-fucosyltransferase (Proc. Natl. Acad. Sci. USA., 1990, 87: 6674), COS-7 cell line which expresses chicken alpha 2,6-sialyltransferase (Eur. J. Biochem., 1994, 219: 375), COS cell line which expresses human alpha 2,8-sialyltransferase (Proc. Natl. Acad. Sci. USA., 1994, 91: 7952), Escherichia coli which expresses beta 1,3-N-acetylglucosaminyltransferase- , beta 1,4-galactosyltransferase, beta 1,3-N-acetylgalactosaminyltransfera- se or alpha 1,4-galactosyltransferase derived from Neisseria (WO 96/10086), Escherichia coli which expresses Neisseria-derived alpha 2,3-sialyltransferase (J. Biol. Chem., 1996, 271: 28271), Escherichia coli which expresses Heilcobacter pylori-derived alpha 1,3-fucosyltransferase (J. Biol. Chem., 1997, 272: 21349 and 21357), and Escherichia coli which expresses yeast-derived alpha 1,2-mannosyltransferase (J. Org. Chem., 1993, 58: 3985). Such organism when further complemented with additional sugar-nucleotide regenerating enzymes will be useful in the methods of the present invention.

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L2: Entry 3 of 5 File: EPAB Mar 16, 1995

DOCUMENT-IDENTIFIER: WO 9507020 A1
TITLE: EXPRESSION OF THE DEVELOPMENTAL I ANTIGEN BY A CLONED HUMAN cDNA ENCODING A BETA-1,6-N-ACETYLGLUCOSAMINYLTRANSFERASE

Abstract (1):
The present invention provides an isolated nucleic acid molecule encoding both a soluble and membrane-bound human beta -1,6-N-acetylglucosaminyltransferase, the I-branching enzyme (IGnT). The invention also provides vectors containing the isolated nucleic acid molecule encoding human IGnT as well as recombinant host cells transformed with the vectors. The invention further provides a method of preparing a membrane-bound form of human IGnT and methods of preparing and purifying soluble human IGnT and active fragments of either form. Also provided are antisense oligonucleotides complementary to a nucleic acid molecule encoding a human IGnT or an active fragment thereof, antibodies directed to the human IGnT, pharmaceutical compositions related to the human IGnT and transgenic nonhuman mammals expressing DNA encoding normal or mutant human IGnT. Also provided are methods for regulating the expression of human IGnT and methods for modifying a biological function mediated by the regulatory activity of human IGnT. Methods of detecting the presence of linear polylactosaminoglycans expressing i antigenic determinants on a cell surface also are provided.

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L2: Entry 4 of 5 File: DWPI Jun 27, 2002

DERWENT-ACC-NO: 2000-423407
DERWENT-WEEK: 200245


TITLE: New nucleic acid molecule encoding UDP-N-acetylglucosamine useful as probe for the detection of specified glucoseaminyltransferase from other species and related organisms

Basic Abstract Text (1):
NOVELTY - An isolated nucleic acid molecule (I), encoding UDP-N-acetylglucosamine: galactose- beta 1,3-N-acetylgalactosamine- alpha -R/N-acetylglucosamine- beta 1,3-N-acetylgalactosamine- alpha -R beta 1,6-N-acetylglucosaminyltransferase (C2/4GnT) or a fragment, is new.

Basic Abstract Text (7):
(5) method of producing C2/4GnT polypeptide; and

Basic Abstract Text (8):
(6) method for identification of variations in beta C2/4GnT gene comprises amplifying C2/4GnT genomic regions by PCR and detecting the presence of sequence variation by DNA sequencing, single-strand conformational polymorphism (SSCP) or mismatch mutation.

Basic Abstract Text (9):
USE - (I) is useful as a probe for the detection of C2/4GnT from other species and related organisms and for the recombinant production of C2/4GnT polypeptide.

Equivalent Abstract Text (1):
NOVELTY - An isolated nucleic acid molecule (I), encoding UDP-N-acetylglucosamine: galactose- beta 1,3-N-acetylgalactosamine- alpha -R/N-acetylglucosamine- beta 1,3-N-acetylgalactosamine- alpha -R beta 1,6-N-acetylglucosaminyltransferase (C2/4GnT) or a fragment, is new.

Equivalent Abstract Text (7):
(5) method of producing C2/4GnT polypeptide; and

Equivalent Abstract Text (8):
(6) method for identification of variations in beta C2/4GnT gene comprises amplifying C2/4GnT genomic regions by PCR and detecting the presence of sequence variation by DNA sequencing, single-strand conformational polymorphism (SSCP) or mismatch mutation.

Equivalent Abstract Text (9):
USE - (I) is useful as a probe for the detection of C2/4GnT from other species and related organisms and for the recombinant production of C2/4GnT polypeptide.

WEST

**End of Result Set**

Generate Collection | Print

L2: Entry 5 of 5 File: DWPI Jun 16, 1998

DERWENT-ACC-NO: 1998-361697
DERWENT-WEEK: 199831


TITLE: New nucleic acid sequences and their complementary sequences - useful for producing fragment of recombinant human I-branching -1,6-N-acetyl-gluc osaminyl-transferase polypeptide

Basic Abstract Text (1):
Nucleic acid selected from: (a) a nucleotide sequence (I), which is linear and has 378 base pairs, as given in the specification; (b) a nucleotide sequence (II) complementary to (I); and (c) a mixture of (I) and (II) comprising single or double stranded nucleic acid molecule. Also claimed are: (A) a nucleic acid selected from a nucleotide sequence (III), which is linear and has 1807 base pairs, as given in the specification; a nucleotide sequence (IV) complementary to (III); and a mixture of (III) and (IV) comprising single or double stranded nucleic acid molecule; (B) a nucleic acid selected from a nucleotide sequence (V), which is linear and has 126 base pairs, as given in the specification; a nucleotide sequence (VI) complementary to (V); and a mixture of (V) and (VI) comprising single or double stranded nucleic acid molecule; (C) a nucleic acid selected from a nucleotide sequence (VII), which is linear and has 400 base pairs, as given in the specification; a nucleotide sequence (VIII) complementary to (VII); and a mixture of (VII) and (VIII) comprising single or double stranded nucleic acid molecule; (D) a vector (IX) containing a nucleic acid molecule comprising a nucleotide sequence selected from (I), (III), (V) and (VII); (E) a host cell containing (IX); (F) a process for obtaining a purified soluble active fragment of recombinant human I-branching beta -1,6-N-acetylglucosaminyltransferase polypeptide (IGnT), comprising: (i) introducing a nucleic acid molecule (selected from (I) or (III)) encoding the soluble active fragment of human IGnT into a host cell; (ii) expressing the soluble active fragment of human IGnT; and (iii) purifying the expressed soluble active fragment of IGnT; and (G) a process for obtaining a host cell expressing a recombinant human IGnT, or a soluble active fragment of it, comprising: (i') introducing a nucleic acid sequence selected from (I), (III), (V) and (VII), into a host cell; and (ii') expressing the recombinant human IGnT or fragment of it in the cell.

# WEST

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**Search Results** - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 20020150968 A1

L2: Entry 1 of 5 File: PGPB Oct 17, 2002

PGPUB-DOCUMENT-NUMBER: 20020150968
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020150968 A1

TITLE: Glycoconjugate and sugar nucleotide synthesis using solid supports

PUBLICATION-DATE: October 17, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---|---|---|---|---|
| Wang, Peng G. | Troy | MI | US | |
| Chen, Xi | Norristown | PA | US | |

US-CL-CURRENT: 435/53; 435/175, 435/68.1, 435/96

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 20020081656 A1

L2: Entry 2 of 5 File: PGPB Jun 27, 2002

PGPUB-DOCUMENT-NUMBER: 20020081656
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020081656 A1

TITLE: UDP-N-acetylglucosamine: Galactose-beta1,3-N-acetylgalactosamine-alpha-R / N-acetylglucosamine-beta1,3,-N-acetylgalactosamine-alpha-R (GlcNAc to GalNAc) beta1,6-N-acetylglucosaminyltransferase, C2/4GnT

PUBLICATION-DATE: June 27, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY | RULE-47 |
|---|---|---|---|---|
| Clausen, Henrik | Holte | | DK | |
| Schwientek, Tilo | Bronshoj | | DK | |

US-CL-CURRENT: 435/69.1; 435/193, 435/320.1; 435/325, 435/6, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 3. Document ID: WO 9507020 A1

L2: Entry 3 of 5 File: EPAB Mar 16, 1995

PUB-NO: WO009507020A1
DOCUMENT-IDENTIFIER: WO 9507020 A1
TITLE: EXPRESSION OF THE DEVELOPMENTAL I ANTIGEN BY A CLONED HUMAN cDNA ENCODING A BETA-1,6-N-ACETYLGLUCOSAMINYLTRANSFERASE

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☑ 4. Document ID: US 20020081656 A1 WO 200034449 A2 AU 200015037 A EP 1135472 A2

L2: Entry 4 of 5 File: DWPI Jun 27, 2002

DERWENT-ACC-NO: 2000-423407
DERWENT-WEEK: 200245
COPYRIGHT 2002 DERWENT INFORMATION LTD

TITLE: New nucleic acid molecule encoding UDP-N-acetylglucosamine useful as probe for the detection of specified glucoseaminyltransferase from other species and related organisms

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 5. Document ID: US 5766910 A

L2: Entry 5 of 5 File: DWPI Jun 16, 1998

DERWENT-ACC-NO: 1998-361697
DERWENT-WEEK: 199831
COPYRIGHT 2002 DERWENT INFORMATION LTD

TITLE: New nucleic acid sequences and their complementary sequences - useful for producing fragment of recombinant human I-branching -1,6-N-acetyl-gluc osaminyl-transferase polypeptide

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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Generate Collection | Print

| Terms | Documents |
|---|---|
| (galactose-beta 1,3-N-acetylgalactosamine-alpha-R) or (N-acetylglucosamine-beta 1,3-N-acetylgalactosamine-alpha-R) or (beta 1,6-N-acetylglucosaminyltransferase) or (C2/4GnT) | 5 |

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**Display Format:** - Change Format

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     (FILE 'HOME' ENTERED AT 12:19:27 ON 18 OCT 2002)

     INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO,
CABA,
     CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB,
     DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 12:19:40 ON
     18 OCT 2002
               SEA (GALACTOSE-BETA 1,3-N-ACETYLGALACTOSAMINE-ALPHA-R) OR
(N-AC
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                1*  FILE ADISALERTS
                0*  FILE ADISINSIGHT
                0*  FILE ADISNEWS
                1*  FILE AGRICOLA
                3*  FILE ANABSTR
                0*  FILE AQUASCI
                2*  FILE BIOBUSINESS
                0*  FILE BIOCOMMERCE
               99*  FILE BIOSIS
                0*  FILE BIOTECHABS
                0*  FILE BIOTECHDS
               83*  FILE BIOTECHNO
                5*  FILE CABA
               80*  FILE CANCERLIT
              111*  FILE CAPLUS
                0*  FILE CEABA-VTB
                0*  FILE CEN
                0*  FILE CIN
                0*  FILE CONFSCI
                0*  FILE CROPB
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                0*  FILE DRUGB
                0*  FILE DRUGLAUNCH
                0*  FILE DRUGMONOG2
                0*  FILE DRUGNL
                0*  FILE DRUGU
                0*  FILE DRUGUPDATES
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               94*  FILE EMBASE
               64*  FILE ESBIOBASE
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                0*  FILE FOMAD
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                0*  FILE FSTA
              114*  FILE GENBANK
                0*  FILE HEALSAFE
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                  0*  FILE VETU
                  5*  FILE WPIDS
                  5*  FILE WPINDEX
L1                 QUE (GALACTOSE-BETA 1,3-N-ACETYLGALACTOSAMINE-ALPHA-R) OR
(N-AC
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     FILE 'MEDLINE, CAPLUS, SCISEARCH, BIOSIS, EMBASE, BIOTECHNO, CANCERLIT,
     ESBIOBASE' ENTERED AT 12:27:52 ON 18 OCT 2002
L2              182 S L1 AND (CDNA OR CLONE)
L3               65 DUP REM L2 (117 DUPLICATES REMOVED)
L4                0 S L3 AND (C2!4GNT)
L5               49 S L3 AND HUMAN
L6               16 S L3 AND (C2 OR GNT)
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L6 ANSWER 1 OF 16 MEDLINE
ACCESSION NUMBER: 2001420800 MEDLINE
DOCUMENT NUMBER: 21362968 PubMed ID: 11469797
TITLE: The widespread effect of beta 1,4-galactosyltransferase on N-glycan processing.
AUTHOR: Fukuta K; Abe R; Yokomatsu T; Minowa M T; Takeuchi M; Asanagi M; Makino T
CORPORATE SOURCE: Life Science Laboratory, Mitsui Chemicals, Incorporated, 1144 Togo, Mobara, Chiba 297-0017, Japan.. kazuhiro.fukuta@mitsui-chem.co.jp
SOURCE: ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, (2001 Aug 1) 392 (1) 79-86.
Journal code: 0372430. ISSN: 0003-9861.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200109
ENTRY DATE: Entered STN: 20010910
Last Updated on STN: 20010910
Entered Medline: 20010906

AB We investigated beta 1,4-GalT (UDP-galactose: beta-d-N-acetylglucosaminide beta 1,4-galactosyltransferase) in terms of intracellular competition with **GnT**-IV (UDP-N-acetylglucosamine: alpha1,3-d-mannoside beta1,4-N-acetylglucosaminyltransferase) and **GnT**-V (UDP-N-acetylglucosamine: alpha1,6-d-mannoside **beta 1, 6-N-acetylglucosaminyltransferase**). The beta 1,4-GalT-I gene was introduced into Chinese hamster ovary (CHO) cells producing human interferon (hIFN)-gamma (IM4/V/IV cells) and five **clones** expressing various levels of beta 1,4-GalT were isolated. As we previously reported, parental IM4/V/IV cells express high levels of **GnT**-IVa and -V and produce hIFN-gamma having primarily tetraantennary sugar chains. The branching of sugar chains on hIFN-gamma was suppressed in the beta 1,4-GalT-enhanced **clones** to a level corresponding to the intracellular activity of beta 1,4-GalT relative to **GnTs**. Moreover, the contents of hybrid-type and high-mannose-type sugar chains increased in these **clones**. The results showed that beta 1,4-GalT widely affects N-glycan processing by competing with **GnT**-IV, **GnT**-V, and alpha-mannosidase II in cells and also by some other mechanisms that suppress the conversion of high-mannose-type sugar chains to the hybrid type.


L6 ANSWER 2 OF 16 MEDLINE
ACCESSION NUMBER: 2001160699 MEDLINE
DOCUMENT NUMBER: 21158291 PubMed ID: 11261840
TITLE: Modulation of the basal activity of phosphatidylinositol-3-kinase/protein kinase B signaling pathway in human hepatocarcinoma cells.
AUTHOR: Guo H B; Shen Z H; Huang C X; Ma J; Huang Y; Chen H L
CORPORATE SOURCE: Key Laboratory of Glycoconjugate Research, Ministry of Health, Shanghai Medical University, China.
SOURCE: GLYCOCONJUGATE JOURNAL, (2000 May) 17 (5) 315-22.
Journal code: 8603310. ISSN: 0282-0080.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200108
ENTRY DATE: Entered STN: 20010820
Last Updated on STN: 20020420
Entered Medline: 20010816

AB The modulation of **GnT**-V activity by signaling molecules in PI-3-K/PKB pathway in human hepatocarcinoma cell line 7721 was studied. **GnT**-V activity was determined after the transfection of sense or antisense **cDNA** of PKB into the cells, as well as the addition of activators, specific inhibitors, and the antibodies to the enzyme assay system or culture medium. It was found that the basal activity of **GnT**-V was up regulated by the sense and down regulated by the antisense **cDNA** of PKB transfected into 7721 cells. **GnT** -V was activated by PIP2, PIP3 or GTPgamma[S] added to the assay system, and the activation of PIP2 or GTPgamma[S] was abolished by LY2940002, a specific inhibitor of PI-3-K, but the activation of PIP3 was not attenuated by LY2940002. In addition, **GnT**-V activity in cultured parental or H-ras transfected cells was inhibited by the antibody against PKB or PI-3-K. These findings demonstrated the involvement of PI-3-K/PKB signaling pathway in the regulation of **GnT**-V. Moreover, ET18-OCH3, an inhibitor of Raf translocation and PI-PLC enzyme, which produces the activator of PKC, as well as the antibodies against Raf-1 or MEK also inhibited **GnT**-V activity in the parental and H-ras transfected cells. The inhibitory rates, however, were less in the transfected cells than those in the parental cells. These results reveal that in parental and H-ras transfected 7721 cells, the basal activity of **GnT**-V is also regulated by the Ras/Raf-1/MEK/MAPK cascade in addition to PI-3-K/PKB signaling pathway. The significance of these two pathways in the regulation of **GnT**-V and their relations to the activation of PKC previously reported by our laboratory (Ju TZ et al., 1995 Glyconjugate J 12, 767-772) was discussed.

L6 ANSWER 3 OF 16 MEDLINE
ACCESSION NUMBER: 2001082782 MEDLINE
DOCUMENT NUMBER: 20428761 PubMed ID: 10972975
TITLE: Down-regulation of N-acetylglucosaminyltransferase V by tumorigenesis- or metastasis-suppressor gene and its relation to metastatic potential of human hepatocarcinoma cells.
AUTHOR: Guo H B; Liu F; Zhao J H; Chen H L
CORPORATE SOURCE: Key Laboratory of Glycoconjugate Research, Ministry of Health, Department of Biochemistry, Shanghai Medical University, Shanghai, People's Republic of China.
SOURCE: JOURNAL OF CELLULAR BIOCHEMISTRY, (2000 Sep 7) 79 (3) 370-85.
Journal code: 8205768. ISSN: 0730-2312.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200101
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010105

AB The effects of transfection of the metastasis suppressor gene nm23-H1 and cell-cycle related tumor-suppressor gene p16 on the activity of N-acetylglucosaminyltransferase V (**GnT**-V) and their relations to cancer metastatic potential were investigated. After transfection of nm23-H1 into 7721 human hepatocarcinoma cells and A549 human lung cancer cells, the activities of **GnT**-V were decreased by 28%-42% in the cells. In contrast, when p16 was transfected into these two cell lines, the decrease of **GnT**-V activity was only observed in A549 cells. This was probably to be due to the obvious expression of p16 gene in parental 7721 cells and the deletion of p16 in A549 cells. The decrease of

**GnT**-V mRNA was only observed in nm23-H1-transfected cells, but not in p16-transfected A549 cells, suggesting that the two genes regulated **GnT**-V via different mechanisms. Horseradish peroxidase (HRP)-lectin staining showed that the 7721 cells transfected with nm23-H1 or the A549 cells transfected with p16 displayed a decreased intensity with HRP-leucoagglutinating phytohemagglutinin and increased intensity with HRP-concanavalin A, indicating the decline of beta1,6 N-acetylglucosamine branching structure on the asparagine-linked glycans of cell-surface and intracellular glycoproteins. The nm23-H1 transfected 7721 cells also displayed some changes in metastasis-related phenotypes, including the increase in cell adhesion to fibronectin (Fn), the decline in cell adhesion to laminin (Ln), and the decreased cell migration and invasion through matrigel. Transfection of antisense **GnT**-V **cDNA** into 7721 cells resulted in a decrease of **GnT**-V activity, an increase of cell adhesion to Fn or Ln, and a decrease in cell migration and invasion through matrigel. These phenotypes bore similarity to those of the 7721 cells transfected with nm23-H1. Our findings indicate that the down-regulation of **GnT**-V by nm23-H1 contributes to the alterations in metastasis-related phenotypes, and is an important molecular mechanism of metastasis suppression mediated by nm23-H1.


L6 ANSWER 4 OF 16 MEDLINE
ACCESSION NUMBER: 2000001950 MEDLINE
DOCUMENT NUMBER: 20001950 PubMed ID: 10529394
TITLE: Increased susceptibility to apoptosis of human hepatocarcinoma cells transfected with antisense N-acetylglucosaminyltransferase V **cDNA**.
COMMENT: Erratum in: Biochem Biophys Res Commun 1999 Dec 20;266(2):615
AUTHOR: Guo H B; Liu F; Chen H L
CORPORATE SOURCE: Ministry of Health, Shanghai Medical University, Shanghai, 200032, China.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1999 Oct 22) 264 (2) 509-17.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000314
Entered Medline: 19991207
AB The antisense **cDNA** of N-acetylglucosaminyltransferase V (**GnT**-V, EC 2. 4.1.155) was constructed as pcDNA3/**GnT**-V-AS plasmid and transfected into 7721 cells, a human hepatocarcinoma cell line. The transfection was confirmed with Northern blot. By using HPLC and HRP-lectin staining, it was found that the cells transfected with pcDNA3/**GnT**-V-AS (**GnT**-V-AS/7721) expressed less **GnT**-V activity and beta-1,6-GlcNAc branching in the cell glycoproteins compared with the cells mock-transfected with the vector pcDNA3 (pcDNA3/7721). The growth rate of **GnT**-V-AS/7721 was decreased in serum-containing medium, while the cell death was accelerated in serum-free medium. The **GnT**-V-AS/7721 cells were more susceptible to the apoptosis induced by ATRA than the mock-transfected cells. This was evidenced by the obvious appearance of a hypoploid sub-G(1) fraction in the DNA histogram using FCM analysis, the more condensed new moon-type nuclei under morphological observation, and the more intensive TUNEL reaction for assaying the fragmented DNA. At the same time as **GnT**-V down-regulation by **GnT**-V-AS, an increase of another N-aceylglusaminyltransferase,

**GnT**-III (EC 2.4.1.144), was observed, and the biological significance of this finding was discussed.


L6 ANSWER 5 OF 16 MEDLINE
ACCESSION NUMBER: 1999367413 MEDLINE
DOCUMENT NUMBER: 99367413 PubMed ID: 10438459
TITLE: Regulation of the **GnT**-V promoter by transcription factor Ets-1 in various cancer cell lines.
AUTHOR: Ko J H; Miyoshi E; Noda K; Ekuni A; Kang R; Ikeda Y; Taniguchi N
CORPORATE SOURCE: Department of Biochemistry, Osaka University Medical School, Room B1, 2-2 Yamadaoka, Suita, Osaka 565-0871, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1999 Aug 13) 274 (33) 22941-8.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199909
ENTRY DATE: Entered STN: 19990913
Last Updated on STN: 19990913
Entered Medline: 19990901

AB Although the precise role of oligosaccharides in metastasis is presently unknown, numerous studies suggest that the beta1-6 branching structure of N-linked oligosaccharides plays a role in tumor metastasis. N-Acetylglucosaminyltransferase V (**GnT**-V), which catalyzes the formation of the beta1-6 branch, therefore appears to play a crucial role in tumor metastasis. Recently, we demonstrated that the expression of the **GnT**-V gene is regulated by a transcriptional factor, Ets-1 (Kang, R., Saito, H., Ihara, Y., Miyoshi, E., Koyama, N., Sheng, Y., and Taniguchi, N. (1996) J. Biol. Chem. 271, 26706-26712). In this study, we report an investigation of the general requirement for Ets-1 in the expression of **GnT**-V in cancer cell lines. In 16 cancer cell lines, the levels of **GnT**-V mRNA were closely correlated with ets-1 expression ($r = 0.97$; $p < 0.0001$). An increase in ets-1 levels by transfection of its **cDNA** led to an enhancement in **GnT** -V expression in cells that normally expressed low levels of ets-1. In contrast, the transfection of dominant negative ets-1 into cells that express high levels of ets-1 resulted in a decrease in **GnT**-V expression. Although Ets-1 cooperates with c-Jun in certain gene expressions, this was not the case in the regulation of the **GnT** -V gene. These results suggest that Ets-1 plays a significant role in regulating the expression of **GnT**-V in a variety of cancers and might be involved in the potential for malignancy via the action of **GnT**-V.

L6 ANSWER 6 OF 16 MEDLINE
ACCESSION NUMBER: 1998001705 MEDLINE
DOCUMENT NUMBER: 98001705 PubMed ID: 9341170
TITLE: Tissue-specific regulation of mouse core 2 **beta-1,6-N-acetylglucosaminyltransferase**.
AUTHOR: Sekine M; Nara K; Suzuki A
CORPORATE SOURCE: Department of Membrane Biochemistry, Tokyo Metropolitan Institute of Medical Science, Bunkyo-ku, Tokyo 113, Japan.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 Oct 24) 272 (43) 27246-52.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals

OTHER SOURCE: GENBANK-D87332; GENBANK-D87333
ENTRY MONTH: 199[redacted]1
ENTRY DATE: Entered STN: 19980109
Last Updated on STN: 20010813
Entered Medline: 19971128

AB Mouse kidney beta-1,6-GlcNAc-transferase (**GNT**) is the key enzyme for the synthesis of a glycosphingolipid (Galbeta1-4(Fucalpha1-3)GlcNAcbeta1-6(Galbeta1 -3)GalNAcbeta1-3Galalph a1-4Galbeta1-4Glcbeta1-ceramide) that contains the LeX trisaccharide epitope at its nonreducing terminus. The expression of this glycolipid in the kidney is polymorphic; it is expressed in BALB/c but not DBA/2 mice; and a single autosomal gene (Gsl5) is responsible for this polymorphism. We report here the **cDNA** sequence that encodes the kidney **GNT** of BALB/c mice, which possess a wild-type Gsl5 gene. The deduced amino acid sequence exhibits 84% identity to that of human core 2 beta-1,6-GlcNAc-transferase, which suggests that kidney **GNT** is a mouse homologue of human core 2 beta-1, 6-GlcNAc-transferase. The **GNT** mRNA is expressed abundantly in the kidney, but was not detected in other BALB/c organs or in the kidneys of DBA/2 mice by Northern blot analysis. In addition, we were able to **clone** and sequence another homologous **cDNA** from the submandibular gland. The two sequences differ only in their 5'-untranslated region. The submandibular gland type of **cDNA** was detected in various organs of DBA/2 mice by reverse transcription-polymerase chain reaction, which indicates that the submandibular gland type is ubiquitous and that its expression is not regulated by the Gsl5 gene. Results obtained using the long accurate polymerase chain reaction method indicate that the **GNT** gene is approximately 45 kilobases long, and the order of the exons from the 5'-end is exon 1 of the kidney type, exon 1 of the ubiquitous type, exon 2, and exon 3. Exons 2 and 3 are present in both transcripts, and the translated region is in exon 3. These data suggest that the expression of **GNT** is regulated by an alternative splicing mechanism and also probably by tissue-specific enhancers and that Gsl5 regulates the expression of **GNT** only in the kidney.

L6 ANSWER 7 OF 16 MEDLINE
ACCESSION NUMBER: 96228338 MEDLINE
DOCUMENT NUMBER: 96228338 PubMed ID: 8642259
TITLE: A peptide recognized by human cytolytic T lymphocytes on HLA-A2 melanomas is encoded by an intron sequence of the N-acetylglucosaminyltransferase V gene.
AUTHOR: Guilloux Y; Lucas S; Brichard V G; Van Pel A; Viret C; De Plaen E; Brasseur F; Lethe B; Jotereau F; Boon T
CORPORATE SOURCE: Ludwig Institute for Cancer Research, Brussels Branch and Cellular Genetics Unit, Universite Catholique de Louvain, Belgium.
SOURCE: JOURNAL OF EXPERIMENTAL MEDICINE, (1996 Mar 1) 183 (3) 1173-83.
Journal code: 2985109R. ISSN: 0022-1007.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-X91652; GENBANK-X91653
ENTRY MONTH: 199607
ENTRY DATE: Entered STN: 19960726
Last Updated on STN: 19970203
Entered Medline: 19960716

AB A cytolytic T lymphocyte (CTL) **clone** that lyses many HLA-A2 melanomas was derived from a population of tumor-infiltrating lymphocytes of an HLA-A2 melanoma patient. The gene coding for the antigen recognized by this CTL was identified by transfection of a **cDNA** library. It

is the gene which has been reported to code for N-acetylglucosaminyltransferase V (**GnT**-V). Remarkably, the antigenic peptide recognized by the CTL is encoded by a sequence located in an intron. In contrast to the fully spliced **GnT**-V mRNA, which was found in a wide range of normal and tumoral tissues, the mRNA containing the intron region coding for the antigen was not found at a significant level in normal tissues. This mRNA was observed to be present in about 50% of melanomas. Our results suggest that a promoter located near the end of the relevant intron is activated in melanoma cells, resulting in the production of an mRNA coding for the antigen.

L6 ANSWER 8 OF 16 MEDLINE
ACCESSION NUMBER: 96004617 MEDLINE
DOCUMENT NUMBER: 96004617 PubMed ID: 7568011
TITLE: Suppression of lung metastasis of B16 mouse melanoma by N-acetylglucosaminyltransferase III gene transfection.
AUTHOR: Yoshimura M; Nishikawa A; Ihara Y; Taniguchi S; Taniguchi N
CORPORATE SOURCE: Department of Biochemistry, Osaka University Medical School, Japan.
SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1995 Sep 12) 92 (19) 8754-8. Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199510
ENTRY DATE: Entered STN: 19951227
Last Updated on STN: 19980206
Entered Medline: 19951023

AB The beta 1-6 structure of N-linked oligosaccharides, formed by **beta-1,6-N-acetylglucosaminyltransferase** (**GnT**-V), is associated with metastatic potential. We established a highly metastatic subclone, B16-hm, from low metastatic B16-F1 murine melanoma cells. The gene encoding beta-1,4-N-acetylglucosaminyltransferase (**GnT**-III) was introduced into the B16-hm cells, and three **clones** that stably expressed high **GnT**-III activity were obtained. In these transfectants, the affinity to leukoagglutinating phytohemagglutinin was reduced, whereas the binding to erythroagglutinating phytohemagglutinin was increased, indicating that the level of beta 1-6 structure was decreased due to competition for substrate between intrinsic **GnT**-V and ectopically expressed **GnT**-III. Lung metastasis after intravenous injection of the transfectants into syngeneic and nude mice was significantly suppressed, suggesting that the decrease in beta 1-6 structure suppressed metastasis via a mechanism independent of the murine system. These transfectants also displayed decreased invasiveness into Matrigel and inhibited cell attachment to collagen and laminin. Cell growth was not affected. Our results demonstrate a causative role for beta 1-6 branches in invasion and cell attachment in the extravasation stage of metastasis.

L6 ANSWER 9 OF 16 MEDLINE
ACCESSION NUMBER: 95197656 MEDLINE
DOCUMENT NUMBER: 95197656 PubMed ID: 7890758
TITLE: Transforming growth factor beta up-regulates expression of the N-acetylglucosaminyltransferase V gene in mouse melanoma cells.
AUTHOR: Miyoshi E; Nishikawa A; Ihara Y; Saito H; Uozumi N; Hayashi N; Fusamoto H; Kamada T; Taniguchi N
CORPORATE SOURCE: Department of Biochemistry, Osaka University Medical School, Japan.

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1995 Mar 17) 270 (11) 62[redacted]20.
Jou[redacted]al code: 2985121R. ISSN: 0021-[redacted]8.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199504
ENTRY DATE: Entered STN: 19950427
Last Updated on STN: 19970203
Entered Medline: 19950418

AB **beta-1,6-N-acetylglucosaminyltransferase** V (**GnT**-V) (EC 2.4.1.155) that catalyzes beta-1,6 branching in asparagine-linked oligosaccharides is activated on viral or oncogenic transformation and is associated with tumor metastasis. To study the molecular mechanisms involved in regulation of expression of the **GnT**-V gene, we cloned **cDNA** and genomic DNA for the enzyme (Saito, H., Nishikawa, A., Gu, J., Ihara, Y., Soejima, Y., Sekiya, C., Niikawa, N., and Taniguchi, N. (1994) Biochem. Biophys. Res. Commun. 198, 318-327). We found that transforming growth factor beta (TGF beta) specifically induced **GnT**-V expression in mouse melanoma cells. The activity of **GnT**-V was increased 24 h after the addition of TGF beta and remained at high levels up to 72 h. Northern blot analysis showed that the mRNA levels of **GnT**-V were consistent with the increased activity. To further investigate the nature of the induction, mRNA stability and transcriptional activity were assayed. The enhancement of the **GnT**-V mRNA expression resulted from prolonged mRNA stability, not from increased transcription. Consequently, elevated mRNA levels were observed even 72 h after the addition of TGF beta. Lectin blot analysis involving leukoagglutinin showed newly synthesized beta-1,6 branching structures in the sugar chains of a protein of approximately 130 kDa at 48 h after TGF beta treatment. These results suggested that TGF beta caused changes in the sugar chains of proteins in melanoma cells by up-regulating **GnT**-V expression.

L6 ANSWER 10 OF 16 MEDLINE
ACCESSION NUMBER: 94121649 MEDLINE
DOCUMENT NUMBER: 94121649 PubMed ID: 8292036
TITLE: **cDNA** cloning and chromosomal mapping of human N-acetylglucosaminyltransferase V+.
AUTHOR: Saito H; Nishikawa A; Gu J; Ihara Y; Soejima H; Wada Y; Sekiya C; Niikawa N; Taniguchi N
CORPORATE SOURCE: Department of Biochemistry, Osaka University Medical School, Japan.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1994 Jan 14) 198 (1) 318-27.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-D17716
ENTRY MONTH: 199402
ENTRY DATE: Entered STN: 19940312
Last Updated on STN: 19970203
Entered Medline: 19940218

AB Human N-acetylglucosaminyltransferase V (**GnT**-V, EC 2.4.1.155) **cDNA** was isolated from a human fetal liver **cDNA** library. Oligonucleotide primers for polymerase chain reaction were designed according to the amino acid sequence of human **GnT**-V. Screening for the **cDNA** was carried out by plaque hybridization using PCR products of about 500 bp. Human **GnT**-V has 741 amino acids and six putative N-glycosylation sites. The homology to rat **GnT**-V is

88% at the nucleotide level and is 97% at the amino acid level, and there is one amino acid insertion. Using the **cDNA clones** probe, five overlapping genomic **clones** have been isolated from a human phagemid DNA library. The **GnT**-V gene has been mapped to chromosome 2q21 using fluorescence in situ hybridization.

L6 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:761744 CAPLUS
DOCUMENT NUMBER: 136:84455
TITLE: Genetic engineering of CHO cells producing human interferon-.gamma. by transfection of sialyltransferases
AUTHOR(S): Fukuta, Kazuhiro; Yokomatsu, Tomoko; Abe, Reiko; Asanagi, Mineko; Makino, Tadashi
CORPORATE SOURCE: Life Science Laboratory, Mitsui Chemicals, Inc., Chiba, 297-0017, Japan
SOURCE: Glycoconjugate Journal (2001), Volume Date 2000, 17(12), 895-904
CODEN: GLJOEW; ISSN: 0282-0080
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Natural human interferon-.gamma. (hIFN-.gamma.) contains mainly biantennary complex-type sugar chains. We previously remodeled the branch structures of N-glycans on hIFN-.gamma. in Chinese hamster ovary (CHO) cells by overexpressing UDP-N-acetylglucosamine: .alpha.1,6-D-mannoside .**beta.1,6-N-acetylglucosaminyltransferase** (**GnT**-V). Normal CHO cells primarily produced hIFN-.gamma. having biantennary sugar chains, whereas a CHO **clone**, designated IM4/Vh, transfected with **GnT**-V, primarily produced hIFN-.gamma. having GlcNAc.beta.1-6 branched triantennary sugar chains when sialylation was incomplete and an increase in poly-N-acetyllactosamine (Gal.beta.1-4GlcNAc.beta.1-3)n was obsd. In the present study, we introduced mouse Gal.beta.1-3/4GlcNAc-R .alpha.2,3-sialyltransferase (ST3Gal IV) and/or rat Gal.beta.1-4GlcNAc-R .alpha.2,6-sialyltransferase (ST6Gal I) **cDNAs** into the IM4/Vh cells to increase the extent of sialylation and to examine the effect of sialyltransferase (ST) type on the linkage of sialic acid. Furthermore, we speculated that sialylation extent might affect the level of poly-N-acetyllactosamine. We isolated four **clones** expressing different levels of .alpha.2,3-ST and/or .alpha.2,6-ST. The extent of sialylation of hIFN-.gamma. from the IM4/Vh **clone** was 61.2%, which increased to about 80% in every ST transfectant. The increase occurred regardless of the type of overexpressed ST, and the proportion of .alpha.2,3- and .alpha.2,6-sialic acid corresponded to the activity ratio of .alpha.2,3-ST to .alpha.2,6-ST. Furthermore, the proportion of N-glycans contg. poly-N-acetyllactosamine was significantly reduced (less than 10%) in the ST transfectants compared with the parental IM4/Vh **clone** (22.9%). These results indicated that genetic engineering of STs is highly effective for regulating the terminal structures of sugar chains on recombinant proteins in CHO cells.
REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:150564 CAPLUS
DOCUMENT NUMBER: 130:322212
TITLE: Control of O-glycan branch formation. Molecular cloning of human **cDNA** encoding a novel .**beta.1,6-N-**

**acetylglucosaminyltransferase** forming core 2 and core 4

AUTHOR(S): Schwientek, Tilo; Nomoto, Mitsuharu; Levery, Steven B.; Merkx, Gerard; Van Kessel, Ad Geurts; Bennett, Eric P.; Hollingsworth, Michael A.; Clausen, Henrik

CORPORATE SOURCE: School of Dentistry, University of Copenhagen, Copenhagen, 2200, Den.

SOURCE: Journal of Biological Chemistry (1999), 274(8), 4504-4512
CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel human UDP-GlcNAc:Gal/GlcNAc.beta.1-3GalNAc.alpha. .beta.1,6GlcNAc-transferase, designated **C2**/4GnT, was identified by BLAST anal. of expressed sequence tags. The sequence of **C2** /4GnT encoded a putative type II transmembrane protein with significant sequence similarity to human C2GnT and IGnT. Expression of the secreted form of **C2**/4GnT in insect cells showed that the gene product had UDP-N-acetyl-.alpha.-D-glucosamine:acceptor .**beta.1**, **6-N-acetylglucosaminyltransferase** (.beta.1,6GlcNAc-transferase) activity. Anal. of substrate specificity revealed that the enzyme catalyzed O-glycan branch formation of the core 2 and core 4 type. NMR analyses of the product formed with core 3-para-nitrophenyl confirmed the product core 4-para-nitrophenyl. The coding region of **C2**/4GnT was contained in a single exon and located to chromosome 15q21.3. Northern anal. revealed a restricted expression pattern of **C2**/4GnT mainly in colon, kidney, pancreas, and small intestine. No expression of **C2**/4GnT was detected in brain, heart, liver, ovary, placenta, spleen, thymus, and peripheral blood leukocytes. The expression of core 2 O-glycans has been correlated with cell differentiation processes and cancer. The results confirm the predicted existence of a .beta.1,6GlcNAc-transferase that functions in both core 2 and core 4 O-glycan branch formation. The redundancy in .beta.1,6GlcNAc-transferases capable of forming core 2 O-glycans is important for understanding the mechanisms leading to specific changes in core 2 branching during cell development and malignant transformation.

REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 16 SCISEARCH COPYRIGHT 2002 ISI (R)

ACCESSION NUMBER: 2000:262310 SCISEARCH

THE GENUINE ARTICLE: 299GV

TITLE: Remodeling of sugar chain structures of human interferon-gamma

AUTHOR: Fukuta K; Abe R; Yokomatsu T; Kono N; Asanagi M; Omae F; Minowa M T; Takeuchi M; Makino T (Reprint)

CORPORATE SOURCE: MITSUBISHI CHEM INC, LIFE SCI LAB, 1144 TOGO, CHIBA 2970017, JAPAN (Reprint); MITSUBISHI CHEM INC, LIFE SCI LAB, CHIBA 2970017, JAPAN; KIRIN BREWERY CO LTD, CENT LABS KEY TECHNOL, KANAZAWA KU, YOKOHAMA, KANAGAWA 236000, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: GLYCOBIOLOGY, (APR 2000) Vol. 10, No. 4, pp. 421-430. Publisher: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND. ISSN: 0959-6658.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: LIFE

LANGUAGE: English

REFERENCE COUNT: 32

*ABSTRACT IS AVAILABLE IN THE ALL ABSTRACT FORMATS*

AB Natural human interferon (IFN)-gamma has mainly biantennary complex-type sugar chains and scarcely has multiantennary structures, We attempted to remodel the sugar chain structures using IFN-gamma as a model glycoprotein, To obtain the branching glycoforms of IFN-gamma, we introduced the genes for **GnT**-IV (UDP-N-acetylglucosamine:alpha-1,3-D-mannoside beta-1,4-N-acetylglucosaminyltransferase) and/or **GnT**-V (UDP-N-acetylglucosamine :a-1,6-D-mannoside **beta-1,6-N-acetylglucosaminyltransferase**) into Chinese hamster ovary (CHO) cells producing human IFN-gamma, The parental CHO cells produced IFN-gamma with biantennary sugar chains mainly. When the **GnT**-IV activity was increased, triantennary sugar chains with a branch produced by **GnT**-IV increased up to 66.9% of the total sugar chains. When the **GnT**-V activity was increased, triantennary sugar chains with a corresponding branch increased up to 55.7% of the total sugar chains, When the **GnT**-IV and -V activities were increased at a time, tetraantennary sugar chains increased up to 56.2% of the total sugar chains. The proportion of these multiantennary sugar chains corresponded to the intracellular activities of **GnT**-IV and -V, What is more, lectin blot and flow cytometric analysis indicated that the multi-branch structure of the sugar chains was increased not only on IFN-gamma, one of the secretory glycoproteins, but also on almost CHO cellular proteins by introducing either or both of the **GnT** genes. The results suggest that the branching structure of sugar chains of glycoproteins could be controlled by cellular **GnT**-IV and **GnT**-V activities. This technology can produce glycoforms out of natural occurrence, which should enlarge the potency of glycoprotein therapeutics.

L6 ANSWER 14 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:309153 BIOSIS
DOCUMENT NUMBER: PREV200000309153
TITLE: Expression of a specific glycosyltransferase enzyme regulates T cell death mediated by galectin-1.
AUTHOR(S): Galvan, Marisa; Tsuboi, Shigeru; Fukuda, Minoru; Baum, Linda G. (1)
CORPORATE SOURCE: (1) Dept. of Pathology and Laboratory Medicine, UCLA School of Medicine, 10833 Le Conte Ave., Los Angeles, CA, 90095 USA
SOURCE: Journal of Biological Chemistry, (June 2, 2000) Vol. 275, No. 22, pp. 16730-16737. print.
ISSN: 0021-9258.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Galectin-1 induces apoptosis of immature thymocytes and activated T cells, suggesting that galectin-1 regulates cell death in the thymus during selection and in the periphery following an immune response. Although it is known that galectin-1 recognizes lactosamine (Gal-GlcNAc) as a minimal ligand, this disaccharide is ubiquitously expressed on a variety of cell surface glycoproteins. Thus, susceptibility to galectin-1 may be regulated by the presentation of lactosamine on specific oligosaccharide structures created by specific glycosyltransferase enzymes. The core 2 **beta-1,6-N-acetylglucosaminyltransferase** (core 2 **GnT**) creates a branched structure on O-glycans that can be elongated to present multiple lactosamine sequences. In the thymus, the core 2 **GnT** is expressed in galectin-1-sensitive thymocyte

subsets. In the periphery, an oligosaccharide epitope created by the core 2 **GnT** is expressed on galectin-1-sensitive activated T-cells. In this report, we demonstrate that expression of the core 2 **GnT** was necessary and sufficient for galectin-1-induced death of murine T cell lines. In addition, over-expression of the core 2 **GnT** in mice increased the susceptibility of double positive thymocytes to galectin-1. These data demonstrate that expression of a specific glycosyltransferase can control susceptibility to galectin-1, suggesting that developmentally regulated glycosyltransferase expression may be a mechanism to modulate cell death during T cell development and function.

L6 ANSWER 15 OF 16 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2001335139 EMBASE
TITLE: Genetic engineering of CHO cells producing human interferon-.gamma. by transfection of sialyltransferases.
AUTHOR: Fukuta K.; Yokomatsu T.; Abe R.; Asanagi M.; Makino T.
CORPORATE SOURCE: K. Fukuta, Life Science Laboratory, Mitsui Chemicals, Inc.,
1144 Togo, Mobara, Chiba 297-0017, Japan.
kazuhiro.fukuta@mitsui-chem.co.jp
SOURCE: Glycoconjugate Journal, (2000) 17/12 (895-904).
Refs: 42
ISSN: 0282-0080 CODEN: GLJOEW
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Natural human interferon-.gamma. (hlFN-.gamma.) contains mainly biantennary complex-type sugar chains. We previously remodeled the branch structures of N-glycans on hlFN-.gamma. in Chinese hamster ovary (CHO) cells by overexpressing UDP-N-acetylglucosamine: .alpha.1,6-D-mannoside .**beta.1,6-N-acetylglucosaminyltransferase** (**GnT**-V). Normal CHO cells primarily produced hlFN-.gamma. having biantennary sugar chains, whereas a CHO **clone**, designated IM4/Vh, transfected with **GnT**-V, primarily produced hlFN-.gamma. having GlcNAc.beta.1-6 branched triantennary sugar chains when sialylation was incomplete and an increase in poly-N-acetyllactosamine (Gal.beta.1-4GlcNAc.beta.1-3)n was observed. In the present study, we introduced mouse Gal.beta.1-3/4GlcNAc-R .alpha.2,3-sialyltransferase (ST3Gal IV) and/or rat Gal.beta.1-4GlcNAc-R .alpha.2,6-sialyltransferase (ST6Gal I) **cDNAs** into the IM4/Vh cells to increase the extent of sialylation and to examine the effect of sialyltransferase (ST) type on the linkage of sialic acid. Furthermore, we speculated that sialylation extent might affect the level of poly-N-acetyllactosamine. We isolated four **clones** expressing different levels of .alpha.2,3-ST and/or .alpha.2,6-ST. The extent of sialylation of hlFN-.gamma. from the IM4/Vh **clone** was 61.2%, which increased to about 80% in every ST transfectant. The increase occurred regardless of the type of overexpressed ST, and the proportion of .alpha.2,3- and .alpha.2,6-sialic acid corresponded to the activity ratio of .alpha.2,3-ST to .alpha.2,6-ST. Furthermore, the proportion of N-glycans containing poly-N-acetyllactosamine was significantly reduced (less than 10%) in the ST transfectants compared with the parental IM4/Vh **clone** (22.9%). These results indicated that genetic engineering of STs is highly effective for regulating the terminal structures of sugar chains on recombinant proteins in CHO cells.

L6 ANSWER 16 OF 16 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2001124619 EMBASE

TITLE: Relationship between metastasis-associated phenotypes and N-glycan structure of surface glycoproteins in human hepatocarcinoma cells.

AUTHOR: Guo H.-B.; Zhang Y.; Chen H.-L.
CORPORATE SOURCE: H.-L. Chen, Key Lab. of Glycoconjugate Res., Ministry of Health, Department of Biochemistry, Shanghai 200032, China.
hlchen@shmu.cdu.cn

SOURCE: Journal of Cancer Research and Clinical Oncology, Supplement, (2001) 127/4 (231-236).
Refs: 24
ISSN: 0943-9382 CODEN: JCCSED
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Purpose: To study the relation of N-glycan structure on cell surface glycoproteins to the metastatic phenotypes. Methods: Two human hepatocarcinoma 7721 cell lines transfected with sense or antisense **cDNA** of **GnT**-V, named **GnT**-V/7721 and **GnT**-V-AS/7721, respectively, were adopted, because **GnT**-V can change the antennary number and the content of the .beta.1,6 Glc-NAc branch in N-glycans. The effects of over- and under-expression of **GnT**-V on the metastasis-associated phenotype of the transfected cells were investigated and compared with the cells mock-transfected with the plasmid vector. Results: In **GnT**-V/7721 cells, **GnT**-V activity was increased by 92% compared with the mock cells. HRP-labeled lectin staining of transfected cells showed elevated intensity with HRP-L-PHA and reduced intensity with HRP-ConA, suggesting the increased antennary number and content of the .beta.1,6 G1cNAc branch in N-glycans. Analysis of the N-glycan structure of [(3)H]-labeled glycopeptides prepared from cell-surface [(3)H] glycoproteins using DSA-affinity chromatography also revealed the above change of the N-glycan structure in a more quantitative manner. **GnT**-V/7721 cells showed a suppressed cell attachment to fibronectin (Fn) or laminin (Ln), and increased cell migration and invasion through matrigel. In contrast, **GnT**-V-AS/7721 cells showed reduction of both **GnT**-V activity and content of the .beta.1,6 branch in N-linked glycans, elevation of cell attachment to Fn or Ln, and decline of cell migration and invasion through matrigel. These changes were just the opposite to those in **GnT**-V/7721 cells. Conclusions: The alteration of N-glycan structure in surface glycoproteins resulting from the activity change of **GnT**-V contributes to the alterations in metastasis-associated phenotypes. The product of **GnT**-V, the .beta.1,6 G1cNAc branch in N-linked glycans, is a structural factor of adhesion inhibition and invasion promotion. **GnT**-V is, therefore, closely related to cancer metastasis and its over-expression is an important molecular mechanism of metastasis.